REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following comments, is respectfully requested.

Claims 1-31 and 45-50 are presently active in this case, Claims 1, 26 and 45 amended and Claim 50 added by way of the present amendment. No new matter is added herewith.

In the outstanding Office Action, Claim 26 was rejected for insufficient antecedent basis; Claims 1-4, 8-10, 26-31 and 48 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,730,803 to Steger et al.; Claims 5-7 were rejected under 35 U.S.C. 103(a) as being unpatentable over Steger et al.; Claims 21-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Steger et al. in view of U.S. Patent Application No. 2002/0050246 to Parkhe and U.S. Patent No. 5,280,156 to Niori et al.; Claims 45-47 were rejected under 35 U.S.C. 103(a) as being unpatentable over Steger et al. in view of U.S. Patent No. 6,051,074 to Strodtbeck et al. and U.S. Patent No. 6,736,206 to Hisai; Claims 45-47 were rejected under 35 U.S.C. 103(a) as being unpatentable over Steger et al. in view of Strodtbeck et al. and Hisai; Claim 14 was rejected under 35 U.S.c. 103(a) as being unpatentable over Steger et al. in view of U.S. Patent Application No. 2004/0144561 to Osanai et al.

With regard to the rejection under 35 U.S.C. §112, second paragraph, Claim 26 is amended to replace "contact zone" with --fluid gap--. Applicants submit that this amendment overcomes the rejection under 35 U.S.C. §112, second paragraph.

Turning now to the merits, in order to expedite issuance of a patent in this case, Applicant has amended the independent claims to clarify the present invention over the cited references. Specifically, amended Claim 1 has been amended to clarify that the brazing

material is disposed adjacent to the fluid gap and ***"in direct contact with each of the heating component and cooling component*** and ***seals an enclosure which forms the fluid gap***." Claims 26 and 45 have been similarly amended to include these features.

An example structure covering these features is shown in Figure 2 of Applicant's specification. As seen in this figure, the cooling component 60 includes channels 66, and a heating component 50 is provided on top of the assembled cooling component 60. Interposed between the heating and cooling components is a brazing material 84 (Fig. 3) for connecting these components, and a fluid gap 90 (Fig. 2) for receiving a fluid to change the thermal conductivity across the gap. The brazing material is disposed so as to make direct contact with both of the heating component 50 and cooling component 60 to seal the enclosed space that forms the fluid gap. As best seen in Fig. 2, the fluid gap extends along several of the channels 66. Grooves 70 are also provided between the heating and cooling components in an effort to prevent the brazing material from entering the fluid gap area 90.

In contrast, the newly cited reference to Steger et al. discloses a substrate holder having a hot electrostatic chuck provided above an underlying cold body. As seen in Fig. 3A of Steger et al., the substrate holder includes a cooling plate 333 having cooling channels 334, and a heated electrostatic chuck 301. A heat transfer plate 314 is positioned between the heating and cooling plate. The cooling plate 333 is coupled to the heat transfer plate 314 by way of heat transfer thermal walls 318 which are brazed to the plate 314 at a top end thereof. A bottom end of each thermal wall 318 includes a base plate 320, which is coupled to the cooling plate 333 by way of screws (not shown but described in Steger et al. at the paragraph linking columns 8 and 9). Thermal grease 322 is provided between the base plate 320 and a surface of the thermal wall 318. Thus, the braze 324 is only provided at a contact point between the wall 318 and plate 314, and Steger et al. does not disclose a brazing material "in

direct contact with each of the heating component and cooling component and seals an enclosure which forms the fluid gap," as now required by amended Claim 1 and similarly required by Claims 26 and 45.

Moreover, Steger et al. discloses that the space surrounding the thermal conductivity walls is at atmospheric pressure (inside and outside of any chamber formed by the walls). Thus, the thermal conduction walls of Steger et al. are not intended to, and in fact cannot, ***vary thermal conductance*** between the cooling and heating components. Therefore, this reference also does not disclose "a fluid gap configured to receive a fluid to vary the thermal conductance between the cooling component and the heating component." This provides another reason for patentablity of the claims over Steger et al. Thus, Steger et al. cannot anticipate amended independent Claims 1, 26 and 45.

The secondary references are cited merely for teaching of dependent Claims and cannot correct the deficiencies of Steger et al. For example, as discussed in the response filed August 26, 2010, Fig. 2B of Parkhe discloses that the electrostatic chuck can be connected to the cooling plate by brazing; however, the top plate 238 of the cooling plate is continuously connected to the transition layer 233 and bonding layer 232 without any gap there between. Thus, Parkhe does not explicitly or inherently disclose a fluid gap between the cooling plate and the electrostatic chuck 105 (or heating plate). The remaining secondary references to Niori et al., Strodtbeck et al., Hisai and Osanai et al. are not cited for any teaching of a fluid gap, and cannot correct the deficiencies noted above.

For the reasons discussed above, independent Claims 1, 26 and 45 patentably define over the cited references. As the remaining examined claims depend from one of these independent claims, the remaining examined claims also patentably define over the cited references. Nevertheless, Claim 50 has been added to further distinguish the claimed

invention over the cited references. Specifically, Claim 50 recites that the brazing material is in the form of a sheet between surfaces of the heating component and cooling component. This feature is supported by paragraph [0036] of Applicants' published specification. Such a sheet type brazing is particularly suitable for brazing by application of heat to the heating and/or cooling component during assembly. Applicants submit that none of the cited references disclose this feature as claimed in dependent Claim 50.

Further, Claim 49 specifies that the fluid gap is approximately 50 μm in distance. In embodiments where the fluid is Helium, this distance is important to the functionality of the fluid gap in varying thermal conductivity across the gap. As noted above, the cited reference to Steger et al. discloses thermal conduction walls extending between the heating and conducting plate, with brazing at a localized region of one end. The remaining secondary references cannot remedy this deficiency of the primary reference. Thus, even if the rejection of Claim 1 is maintained, Claims 49 and 50 should be indicated as allowable.

Consequently, it is respectfully submitted the outstanding objections and rejections have been addressed/overcome and should be withdrawn. Since it is believed no other issues remain in this case, a timely Notice of Allowance is respectfully requested. Should the Examiner disagree, the Examiner is encouraged to contact the undersigned to resolve any remaining issues.

Respectfully submitted,

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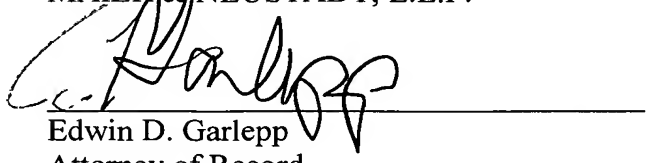

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